Section 2. Beacon Systems

5-2-1. ASSIGNMENT CRITERIA

a. General.

1. Mode 3/A is designated as the common military/ civil mode for air traffic control use.

2. Make radar beacon code assignments to only Mode 3/A transponder-equipped aircraft.

b. Unless otherwise specified in a directive or a letter of agreement, make code assignments to departing, en route, and arrival aircraft in accordance with the procedures specified in this section for the radar beacon code environment in which you are providing ATC service. Give first preference to the use of discrete beacon codes.

PHRASEOLOGY-
SQUAWK THREE/ALFA (code),

or

SQUAWK (code).

NOTE-
A code environment is determined by an operating position's/sector's equipment capability to decode radar beacon targets using either the first and second or all four digits of a beacon code.

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-2. DISCRETE ENVIRONMENT

a. Issue discrete beacon codes assigned by the computer. Computer-assigned codes may be modified as required.

1. *TERMINAL.* Aircraft that will remain within the terminal facility's delegated airspace shall be assigned a code from the code subset allocated to the terminal facility.

2. *TERMINAL.* Unless otherwise specified in a facility directive or a letter of agreement, aircraft that will enter an adjacent ATTS facility's delegated airspace shall be assigned a beacon code assigned by the ARTCC computer.

NOTE-
1. *This will provide the adjacent facility advance information on the aircraft and will cause auto-acquisition of the aircraft prior to handoff.*

2. *When an IFR aircraft, or a VFR aircraft that has been assigned a beacon code by the host computer and whose flight plan will terminate in another facility's area, cancels ATC service or does not activate the flight plan, send a remove strips (RS) message on that aircraft via host keyboard, the FDIO keyboard, or call via service F.*

b. Make handoffs to other positions/sectors on the computer-assigned code.

c. Coastal facilities accepting "over" traffic that will subsequently be handed-off to an oceanic ARTCC shall reassign a new discrete beacon code to an aircraft when it first enters the receiving facility's airspace. The code reassignment shall be accomplished by inputting an appropriate message into the computer and issued to the pilot while operating in the first sector/position in the receiving facility's airspace.

NOTE-
Per an agreement between FAA and the Department of Defense, 17 Code subsets in the NBCAP have been reserved for exclusive military use outside NBCAP airspace. To maximize the use of these subsets, they have been allocated to ARTCC's underlying NBCAP airspace that do not abut an oceanic ARTCC's area. To preclude a potential situation where two aircraft might be in the same airspace at the same time on the same discrete code, it is necessary to reassign an aircraft another code as specified in subpara c.

REFERENCE-
FAAO 7110.65, Mixed Environment, Para 5-2-4.
FAAO 7110.65, VFR Code Assignments, Para 5-2-9.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-3. NONDISCRETE ENVIRONMENT

a. Assign appropriate nondiscrete beacon codes from the function codes specified in para 5-2-6, Function Code Assignments.

b. Unless otherwise coordinated at the time of handoff, make handoffs to other positions/sectors on an appropriate nondiscrete function code.

REFERENCE-
FAAO 7110.65, Mixed Environment, Para 5-2-4.
FAAO 7110.65, VFR Code Assignments, Para 5-2-9.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-4. MIXED ENVIRONMENT

a. When discrete beacon code capability does not exist in your area of responsibility, comply with the procedures specified in para 5-2-3, Nondiscrete Environment.

NOTE-
In a mixed code environment, a situation may exist where a discrete-equipped position/sector exchanges control of aircraft with nondiscrete-equipped facilities or vice versa.

b. When discrete beacon code capability exists in your area of responsibility:

1. Comply with the procedures specified in para 5-2-2, Discrete Environment, and

2. Unless otherwise coordinated at the time of handoff, assign aircraft that will enter the area of responsibility of a nondiscrete-equipped position/sector an appropriate nondiscrete function code from the codes specified in para 5-2-6, Function Code Assignments, prior to initiating a handoff.

REFERENCE-
FAAO 7110.65, IFR-VFR and VFR-IFR Flights, Para 4-2-8.
FAAO 7110.65, VFR Code Assignments, Para 5-2-9.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-5. RADAR BEACON CODE CHANGES

Unless otherwise specified in a directive or a letter of agreement or coordinated at the time of handoff, do not request an aircraft to change from the code it was squawking in the transferring facility's area until the aircraft is within your area of responsibility.

REFERENCE-
FAAO 7110.65, IFR-VFR and VFR-IFR Flights, Para 4-2-8.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-6. FUNCTION CODE ASSIGNMENTS

Unless otherwise specified by a directive or a letter of agreement, make nondiscrete code assignments from the following categories:

a. Assign codes to departing IFR aircraft as follows:

1. **Code 2000** to an aircraft which will climb to FL 240 or above or to an aircraft which will climb to FL 180 or above where the base of Class A airspace and the base of the operating sector are at FL 180, and for inter-facility handoff the receiving sector is also stratified at FL 180. The en route code shall not be assigned until the aircraft is established in the high altitude sector.

2. **Code 1100** to an aircraft which will remain below FL 240 or below FL 180 as above.

3. For handoffs from terminal facilities when so specified in a letter of agreement as follows:

(a) Within NBCAP airspace- **Code 0100 to Code 0400** inclusive or any other code authorized by the regional air traffic division.

(b) Outside NBCAP airspace- **Code 1000** or one of the codes from **0100 to 0700** inclusive or any other code authorized by the regional air traffic division.

b. Assign codes to en route IFR aircraft as follows:

NOTE-
1. FL 180 may be used in lieu of FL 240 where the base of Class A airspace and the base of the operating sector are at FL 180, and for inter-facility handoff the receiving sector is also stratified at FL 180.

2. The provisions of subparas b2(b) and (c) may be modified by facility directive or letter of agreement when operational complexities or simplified sectorization indicate. Letters of agreement are mandatory when the operating sectors of two facilities are not stratified at identical levels. The general concept of utilizing codes 2100 through 2500 within Class A airspace should be adhered to.

1. Aircraft operating below FL 240 or when control is transferred to a controller whose area includes the stratum involved.

(a) **Code 1000** may be assigned to aircraft changing altitudes.

(b) **Code 1100** to an aircraft operating at an assigned altitude below FL 240. Should an additional code be operationally desirable, **code 1300** shall be assigned.

2. Aircraft operating at or above FL 240 or when control is transferred to a controller whose area includes the stratum involved.

(a) **Code 2300** may be assigned to aircraft changing altitudes.

(b) **Code 2100** to an aircraft operating at an assigned altitude from FL 240 to FL 330 inclusive. Should an additional code be operationally desirable, **code 2200** shall be assigned.

(c) **Code 2400** to an aircraft operating at an assigned altitude from FL 350 to FL 600 inclusive. Should an additional code be operationally desirable, **code 2500** shall be assigned.

3. **Code 4000** when aircraft are operating on a flight plan specifying frequent or rapid changes in assigned altitude in more than one stratum or other conditions of flight not compatible with a stratified code assignment.

NOTE-
1. *Categories of flight that can be assigned code 4000 include certain flight test aircraft, MTR missions, aerial refueling operation requiring descent involving more than one stratum, ALTRV's where continuous monitoring of ATC communications facilities is not required and frequent altitude changes are approved, and other aircraft operating on flight plans requiring special handling by ATC.*

2. *Military aircraft operating VFR or IFR in restricted/warning areas or VFR on VR routes will adjust their transponders to reply on code 4000 unless another code has been assigned by ATC or coordinated, if possible, with ATC.*

c. Assign the following codes to arriving IFR aircraft, except military turbojet aircraft as specified in para 4-7-4, Radio Frequency and Radar Beacon Changes for Military Aircraft:

NOTE-
FL 180 may be used in lieu of FL 240 where the base of Class A airspace and the base of the operating sector are at FL 180, and for inter-facility handoff the receiving sector is also stratified at FL 180.

1. Code 2300 may be assigned for descents while above FL 240.

2. Code 1500 may be assigned for descents into and while within the strata below FL 240, or with prior coordination the specific code utilized by the destination controller, or the code currently assigned when descent clearance is issued.

3. The applicable en route code for the holding altitude if holding is necessary before entering the terminal area and the appropriate code in subparas 1 or 2.

REFERENCE-
FAAO 7110.65, IFR-VFR and VFR-IFR Flights, Para 4-2-8.
FAAO 7110.65, Nondiscrete Environment, Para 5-2-3.
FAAO 7110.65, Mixed Environment, Para 5-2-4.
FAAO 7110.65, VFR Code Assignments, Para 5-2-9.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-7. EMERGENCY CODE ASSIGNMENT

Assign codes to emergency aircraft as follows:

a. Code 7700 when the pilot declares an emergency and the aircraft is not radar identified.

PHRASEOLOGY-
SQUAWK MAYDAY ON 7700.

b. After radio and radar contact have been established, you may request other than single-piloted helicopters and single-piloted turbojet aircraft to change from **code 7700** to another code appropriate for your radar beacon code environment.

NOTE-
1. *The code change, based on pilot concurrence, the nature of the emergency, and current flight conditions will signify to other radar facilities that the aircraft in distress is identified and under ATC control.*

2. *Pilots of single-piloted helicopters and single-piloted turbojet aircraft may be unable to reposition transponder controls during the emergency.*

PHRASEOLOGY-
RADAR CONTACT (position). IF FEASIBLE, SQUAWK (code).

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

c. The following shall be accomplished on a Mode C equipped VFR aircraft which is in emergency but no longer requires the assignment of **code 7700**:

1. *TERMINAL.* Assign a beacon code that will permit terminal minimum safe altitude warning (MSAW) alarm processing.

2. *EN ROUTE.* An appropriate keyboard entry shall be made to ensure en route MSAW (EMSAW) alarm processing.

5-2-8. RADIO FAILURE

When you observe a **code 7600** display, apply the procedures in para 10-4-4, Communications Failure.

NOTE-
Should a transponder-equipped aircraft experience a loss of two-way radio communications capability, the pilot can be expected to adjust his/her transponder to code 7600.

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-9. VFR CODE ASSIGNMENTS

a. For VFR aircraft receiving radar advisories, assign an appropriate function code or computer-assigned code for the code environment in which you are providing service.

NOTE-
1. *Para 5-2-2, Discrete Environment; para 5-2-3, Nondiscrete Environment, and para 5-2-4, Mixed Environment, specify code assignment procedures to follow for the three code environments.*

2. *Para 5-2-6, Function Code Assignments, specifies the function code allocation from which an appropriate code for the aircraft indicated in subpara a should be selected. In the terminal environment, additional function codes may be authorized by the regional air traffic division.*

1. If the aircraft is outside of your area of responsibility and an operational benefit will be gained by retaining the aircraft on your frequency for the purpose of providing services, ensure that coordination has been effected:

(a) As soon as possible after positive identification, and

(b) Prior to issuing a control instruction or providing a service other than a safety alert/traffic advisory.

NOTE-
Safety alerts/traffic advisories may be issued to an aircraft prior to coordination if an imminent situation may be averted by such action. Coordination should be effected as soon as possible thereafter.

b. Instruct IFR aircraft which cancel an IFR flight plan and are not requesting radar advisory service and VFR aircraft for which radar advisory service is being terminated to squawk the VFR code.

PHRASEOLOGY-
SQUAWK VFR.

or

SQUAWK 1200.

NOTE-
1. *Aircraft not in contact with an ATC facility may squawk 1255 in lieu of 1200 while en route to/from or within the designated fire fighting area(s).*

2. *VFR aircraft which fly authorized SAR missions for the USAF or USCG may be advised to squawk 1277 in lieu of 1200 while en route to/from or within the designated search area.*

REFERENCE-
FAAO 7110.66, National Beacon Code Allocation Plan.

c. When an aircraft changes from VFR to IFR, the controller shall assign a beacon code to Mode C equipped aircraft that will allow MSAW alarms.

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-10. BEACON CODE FOR PRESSURE SUIT FLIGHTS AND FLIGHTS ABOVE FL 600

a. Mode 3/A, **code 4400**, and discrete codes **4401 through 4477** are reserved for use by R-71, F-12, U-2, B-57, pressure suit flights, and aircraft operations above FL 600.

NOTE-
The specific allocation of the special use codes in subset 4400 is in FAAO 7110.66, National Beacon Code Allocation Plan.

b. Ensure that aircraft remain on **code 4400** or one of the special use discrete codes in the **4400** subset if filed as part of the flight plan. Except when unforeseen events, such as weather deviations, equipment failure, etc., cause more than one aircraft with same Mode 3/A discrete beacon codes to be in the same or adjacent ARTCC's airspace at the same time, a controller may request the pilot to make a code change, squawk standby, or to stop squawk as appropriate.

NOTE-
*Due to the inaccessibility of certain equipment to the flight crews, **code 4400** or a discrete code from the **4400** subset is preset on the ground and will be used throughout the flight profile including operations below FL 600. Controllers should be cognizant that not all aircraft may be able to accept the transponder changes identified in the exception. Emergency **code 7700**, however, can be activated.*

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-11. AIR DEFENSE EXERCISE BEACON CODE ASSIGNMENT

EN ROUTE

Ensure exercise FAKER aircraft remain on the exercise flight plan filed discrete beacon code.

NOTE-
1. *NORAD will ensure exercise FAKER aircraft flight plans are filed containing discrete beacon codes from the Department of Defense code allocation specified in FAAO 7610.4, Special Military Operations, Appendix 8.*

2. *NORAD will ensure that those FAKER aircraft assigned the same discrete beacon code are not flight planned in the same or any adjacent ARTCC's airspace at the same time. (Simultaneous assignment of codes will only occur when operational requirements necessitate.)*

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-12. STANDBY OR LOW SENSITIVITY OPERATION

You may instruct an aircraft operating on an assigned code to change transponder to "standby" or "low sensitivity" position:

NOTE-
National standards no longer require improved transponder to be equipped with the low sensitivity feature. Therefore, aircraft with late model transponders will be unable to respond to a request to "squawk low."

a. When approximately 15 miles from its destination and you no longer desire operation of the transponder.

b. When necessary to reduce clutter in a multi-target area, or to reduce "ring-around" or other phenomena, provided you instruct the aircraft to return to "normal sensitivity" position as soon as possible thereafter.

PHRASEOLOGY-
SQUAWK STANDBY,

or

SQUAWK LOW/NORMAL.

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-13. CODE MONITOR

Continuously monitor the Mode 3/A radar beacon codes assigned for use by aircraft operating within your area of responsibility when nonautomated beacon decoding equipment (e.g., 10-channel decoder) is used to display the target symbol.

REFERENCE-
FAAO 7110.65, Function Code Assignments, Para 5-2-6.

NOTE-
In addition to alphanumeric and control symbology processing enhancements, the M-EARTS, STARS, and the TPX-42 systems are equipped with automatic beacon decoders. Therefore, in facilities where the automatic beacon decoders are providing the control slash video, there is no requirement to have the nonautomated decoding equipment operating simultaneously.

REFERENCE-
FAAO 7210.3, Monitoring of Mode 3/A Radar Beacon Codes, Para 3-7-4.

a. This includes the appropriate IFR code actually assigned and, additionally, **code 1200, code 1255,** and **code 1277** unless your area of responsibility includes only Class A airspace. During periods when ring-around or excessive VFR target presentations derogate the separation of IFR traffic, the monitoring of VFR **code 1200, code 1255, and code 1277** may be temporarily discontinued.

b. Positions of operation which contain a restricted or warning area or VR route within or immediately adjacent to their area of jurisdiction shall monitor **code 4000** and any other code used in lieu of **4000** within the warning/restricted area or VR route. If by local coordination with the restricted/warning area or VR route user a code other than 4000 is to be exclusively used, then this code shall be monitored.

c. If a normally assigned beacon code disappears, check for a response on the following codes in the order listed and take appropriate action:

NOTE-
When codes 7500 and/or 7600 have been preselected, it will be necessary for the ID-SEL-OFF switches for these codes to be left in the off position so that beacon target for an aircraft changing to one of these codes will disappear, thereby alerting the controller to make the check. This check will not be required if automatic alerting capability exists.

1. **Code 7500** (hijack code).

REFERENCE-
FAAO 7110.65, Hijacked Aircraft, Para 10-2-6.

2. **Code 7600** (loss of radio communications code).

5-2-14. FAILURE TO DISPLAY ASSIGNED BEACON CODE OR INOPERATIVE/ MALFUNCTIONING TRANSPONDER

a. Inform an aircraft with an operable transponder that the assigned beacon code is not being displayed.

PHRASEOLOGY-
(Identification) RESET TRANSPONDER, SQUAWK (appropriate code).

b. Inform an aircraft when its transponder appears to be inoperative or malfunctioning.

PHRASEOLOGY-
(Identification) YOUR TRANSPONDER APPEARS INOPERATIVE/MALFUNCTIONING, RESET, SQUAWK (appropriate code).

c. Ensure that the subsequent control position in the facility or the next facility, as applicable, is notified when an aircraft transponder is malfunctioning/inoperative.

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-15. INOPERATIVE OR MALFUNCTIONING INTERROGATOR

Inform aircraft concerned when the ground interrogator appears to be inoperative or malfunctioning.

PHRASEOLOGY-
(Name of facility or control function) BEACON INTERROGATOR INOPERATIVE/MALFUNCTIONING.

REFERENCE-
FAAO 7110.65, Radar Use, Para 5-1-3.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-16. FAILED TRANSPONDER IN CLASS A AIRSPACE

Disapprove a request or withdraw previously issued approval to operate in Class A airspace with a failed transponder solely on the basis of traffic conditions or other operational factors.

REFERENCE-
FAAO 7110.65, Radar Use, Para 5-1-3.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-17. VALIDATION OF MODE C READOUT

Ensure that Mode C altitude readouts are valid after accepting an interfacility handoff, initial track start, track start from coast/suspend tabular list, missing, or unreasonable Mode C readouts. For TPX-42 and equivalent systems ensure that altitude readout is valid immediately after identification. (TCDD-/BANS-equipped tower cabs are not required to validate Mode C readouts after receiving interfacility handoffs from TRACON's according to the procedures in para 5-4-3, Methods, subpara a4.)

a. Consider an altitude readout valid when:

1. It varies less than 300 feet from the pilot reported altitude, or

PHRASEOLOGY-
(If aircraft is known to be operating below the lowest useable flight level),

SAY ALTITUDE.

or

(If aircraft is known to be operating at or above the lowest useable flight level),

SAY FLIGHT LEVEL.

2. You receive a continuous readout from an aircraft on the airport and the readout varies by less than 300 feet from the field elevation, or

NOTE-
A continuous readout exists only when the altitude filter limits are set to include the field elevation.

REFERENCE-
FAAO 7110.65, Altitude Filters, Para 5-2-23.
FAAO 7110.65, Selected Altitude Limits, Para 5-14-5.
FAAO 7210.3, Display Data, Para 11-2-3.

3. You have correlated the altitude information in your data block with the validated information in a data block generated in another facility (by verbally coordinating with the other controller) and your readout is exactly the same as the readout in the other data block.

b. When unable to validate the readout, do not use the Mode C altitude information for separation.

c. Whenever you observe an invalid Mode C readout below FL 180:

1. Issue the correct altimeter setting and confirm the pilot has accurately reported the altitude.

PHRASEOLOGY-
(Location) ALTIMETER (appropriate altimeter), VERIFY ALTITUDE.

2. If the altitude readout continues to be invalid:

(a) Instruct the pilot to turn off the altitude-reporting part of his/her transponder and include the reason; and

(b) Notify the operations supervisor-in-charge of the aircraft call sign.

PHRASEOLOGY-
STOP ALTITUDE SQUAWK. ALTITUDE DIFFERS BY (number of feet) FEET.

d. Whenever you observe an invalid Mode C readout at or above FL 180, unless the aircraft is descending below Class A airspace:

1. Confirm that the pilot is using 29.92 Hg of mercury as the altimeter setting and has accurately reported the altitude.

PHRASEOLOGY-
CONFIRM USING TWO NINER NINER TWO AS YOUR ALTIMETER SETTING.

(If aircraft is known to be operating at or above the lowest useable flight level),

VERIFY FLIGHT LEVEL.

2. If the Mode C readout continues to be invalid:

(a) Instruct the pilot to turn off the altitude-reporting part of his/her transponder and include the reason; and

(b) Notify the operational supervisor-in-charge of the aircraft call sign.

PHRASEOLOGY-
STOP ALTITUDE SQUAWK. ALTITUDE DIFFERS BY (number of feet) FEET.

e. Whenever possible, inhibit altitude readouts on all consoles when a malfunction of the ground equipment causes repeated invalid readouts.

5-2-18. ALTITUDE CONFIRMATION- MODE C

Request a pilot to confirm assigned altitude on initial contact unless:

NOTE-
For the purpose of this paragraph, "initial contact" means a pilot's first radio contact with each sector/position.

a. The pilot states the assigned altitude, or

b. You assign a new altitude to a climbing or a descending aircraft, or

c. The Mode C readout is valid and indicates that the aircraft is established at the assigned altitude, or

d. *TERMINAL.* The aircraft was transferred to you from another sector/position within your facility (intra-facility).

PHRASEOLOGY-
(In level flight situations), VERIFY AT (altitude/flight level).

(In climbing/descending situations),

(if aircraft has been assigned an altitude below the lowest useable flight level),

VERIFY ASSIGNED ALTITUDE (altitude).

or

(If aircraft has been assigned a flight level at or above the lowest useable flight level),

VERIFY ASSIGNED FLIGHT LEVEL (flight level).

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-19. ALTITUDE CONFIRMATION- NON-MODE C

a. Request a pilot to confirm assigned altitude on initial contact unless:

NOTE-
For the purpose of this paragraph, "initial contact" means a pilot's first radio contact with each sector/position.

1. The pilot states the assigned altitude, or

2. You assign a new altitude to a climbing or a descending aircraft, or

3. *TERMINAL.* The aircraft was transferred to you from another sector/position within your facility (intrafacility).

PHRASEOLOGY-
(In level flight situations), VERIFY AT (altitude/flight level).

(In climbing/descending situations), VERIFY ASSIGNED ALTITUDE/FLIGHT LEVEL (altitude/flight level).

b. USA. Reconfirm all pilot altitude read backs.

PHRASEOLOGY-
(If the altitude read back is correct),

AFFIRMATIVE (altitude).

(If the altitude read back is not correct),

NEGATIVE. CLIMB/DESCEND AND MAINTAIN (altitude),

or

NEGATIVE. MAINTAIN (altitude).

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-20. AUTOMATIC ALTITUDE REPORTING

Inform an aircraft when you want it to turn on/off the automatic altitude reporting feature of its transponder.

PHRASEOLOGY-
SQUAWK ALTITUDE,

or

STOP ALTITUDE SQUAWK.

NOTE-
Controllers should be aware that not all aircraft have a capability to disengage the altitude squawk independently from the beacon code squawk. On some aircraft both functions are controlled by the same switch.

REFERENCE-
FAAO 7110.65, Validation of Mode C Readout, Para 5-2-17.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.
P/CG Term- Automatic Altitude Report.

5-2-21. INFLIGHT DEVIATIONS FROM TRANSPONDER/MODE C REQUIREMENTS BETWEEN 10,000 FEET AND 18,000 FEET

Apply the following procedures to requests to deviate from the Mode C transponder requirement by aircraft operating in the airspace of the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL and below 18,000 feet MSL, excluding the airspace at and below 2,500 feet AGL.

NOTE-
1. *14 CFR Section 91.215(b) provides, in part, that all U.S. registered civil aircraft must be equipped with an operable, coded radar beacon transponder when operating in the altitude stratum listed above. Such transponders shall have a Mode 3/A 4096 code capability, replying to Mode 3/A interrogation with the code specified by ATC, or a Mode S capability, replying to Mode 3/A interrogations with the code specified by ATC. The aircraft must also be equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments.*

2. *The exception to 14 CFR Section 91.215 (b) is 14 CFR Section 91.215(b)(5) which states: except balloons, gliders, and aircraft without engine-driven electrical systems.*

REFERENCE-
FAAO 7210.3, Temporary Flight Restrictions, Chapter 18, Section 4.

a. Except in an emergency, do not approve inflight requests for authorization to deviate from 14 CFR Section 91.215(b)(5)(i) requirements originated by aircraft without transponder equipment installed.

b. Approve or disapprove other inflight deviation requests, or withdraw approval previously issued to such flights, solely on the basis of traffic conditions and other operational factors.

c. Adhere to the following sequence of action when an inflight VFR deviation request is received from an aircraft with an inoperative transponder or Mode C, or is not Mode C equipped:

1. Suggest that the aircraft conduct its flight in airspace unaffected by the CFR's.

2. Suggest that the aircraft file an IFR flight plan.

3. Suggest that the aircraft provide a VFR route of flight and maintain radio contact with ATC.

d. Do not approve an inflight deviation unless the aircraft has filed an IFR flight plan or a VFR route of flight is provided and radio contact with ATC is maintained.

e. You may approve an inflight deviation request which includes airspace outside your jurisdiction without the prior approval of the adjacent ATC sector/facility providing a transponder/Mode C status report is forwarded prior to control transfer.

f. Approve or disapprove inflight deviation requests within a reasonable period of time or advise when approval/disapproval can be expected.

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-22. BEACON TERMINATION

Inform an aircraft when you want it to turn off its transponder.

PHRASEOLOGY-

STOP SQUAWK.

(For a military aircraft when you do not know if the military service requires that it continue operating on another mode),

STOP SQUAWK (mode in use).

REFERENCE-
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.

5-2-23. ALTITUDE FILTERS

TERMINAL

Set altitude filters to display Mode C altitude readouts to encompass all altitudes within the controller's jurisdiction. Set the upper limits no lower than 1,000 feet above the highest altitude for which the controller is responsible. In those stratified positions, set the lower limit to 1,000 feet or more below the lowest altitude for which the controller is responsible. When the position's area of responsibility includes down to an airport field elevation, the facility will normally set the lower altitude filter limit to encompass the field elevation so that provisions of para 2-1-6, Safety Alert, and para 5-2-17, Validation of Mode C Readout, subpara a2 may be applied. Air traffic managers may authorize temporary suspension of this requirement when target clutter is excessive.